

REMARKS

The Present Invention

The invention is directed to a plasmid defective for conjugative transfer function comprising a DNA fragment containing a gene coding for an enzyme taking pyrroloquinoline-quinone (PQQ) as a prosthetic group, a bacterial transformant bearing the same and having the ability to produce the enzyme taking PQQ as the prosthetic group, and a method of producing the enzyme taking PQQ as a prosthetic group which comprises using the transformant.

The Pending Claims

Claims 1-6 are pending and directed to a plasmid (claims 1-3), a transformant comprising the plasmid (claims 4 and 5), and a method of producing an enzyme through use of the plasmid (claim 6).

The Amendments to the Claims

Claim 1 has been amended to point out more particularly and claim more distinctly the present invention. Claim 1 has been amended to clarify the claim language as suggested by the Office. No new matter has been added by way of this amendment. Separate documents setting forth the amendment to claim 1, as well as the text of all of the pending claims as amended, are enclosed.

The Office Action

The Office has rejected claims 1-6 under 35 U.S.C. § 103(a) as allegedly obvious in view of JP 11-243949 (Takeshima et al.) in combination with U.S. Patent No. 5,670,343 (Cameron et al.). The Office also has rejected claims 1-6 under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Reconsideration of these rejections is hereby requested.

Discussion of the Rejection under 35 U.S.C. §103(a)

The Office contends that claims 1-6 are obvious in view of the Takeshima reference in combination with the Cameron reference. Applicants traverse the Office's rejection for the following reasons.

The present invention is directed to a plasmid defective for conjugative transfer function comprising a DNA fragment containing a gene coding for an enzyme taking PQQ as a prosthetic group. A plasmid defective for conjugative transfer function, as recited in the pending claims, is a plasmid which has neither the mob or tra loci. Plasmids defective for

mob or tra are preferable, in terms of biological containment, to plasmids having mob, tra, or both loci.

The Takeshima reference discloses pTS1137, a plasmid belonging to compatibility Group P-4. pTS1137 exhibits a conjugative transfer function upon conjugation with Group P-1 plasmids (see, e.g., page 3, lines 19-34, and page 9, lines 26-31, of the present specification).

The Cameron reference discloses vectors advantageously derived from plasmid RK2 (see, e.g., column 4, lines 38-43, of the Cameron reference). Plasmid RK2 carries the conjugation functions, tra and mob (see, e.g., column 1, lines 52-57, of the Cameron reference). Cameron teaches that a loss of mobilization features is obtained by deletion of a region carrying the mob locus (see, e.g., column 4, line 63, through column 5, line 4, of the Cameron reference). The plasmid derived from plasmid RK2, which lacks the mob locus, retains the tra locus. This plasmid will exhibit a conjugative transfer function if other plasmids having a mob locus exist in the same environment.

Thus, while the plasmids of the present invention are completely conjugative transfer defective, the plasmids of the Takeshima and Cameron references exhibit conjugative transfer functions if other plasmids are in the same environment which contain the tra or mob loci, respectively. For this reason, upon reading the Takeshima and Cameron references, one of ordinary skill in the art would not have been motivated to combine the two references, both of which describe plasmids with conjugative transfer functions, to arrive at the presently claimed invention (i.e., a plasmid defective for conjugative transfer function). Therefore, the present invention as recited in claims 1-6 is nonobvious over the Takeshima reference in view of the Cameron reference, and the Section 103(a) rejection should be withdrawn.

Discussion of the Rejection under 35 U.S.C. §112, second paragraph

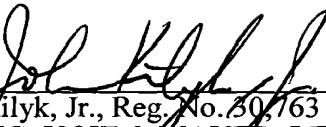
The Office contends that claims 1-6 are indefinite for the recitation in claim 1 of "the plasmid is expressed in bacteria...." As suggested by the Office, claim 1 has been amended to recite "the plasmid is expressible in bacteria." Therefore, the rejection of claim 1-6 under Section 112, second paragraph, should be withdrawn.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

In re Appln. of Hattori et al.
Application No. 09/765,865

Respectfully submitted,


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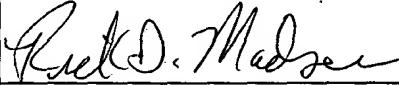
Date: December 16, 2002

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I hereby certify that this RESPONSE TO OFFICE ACTION and all accompanying documents are being deposited with the United States Postal Service "Express Mail Post Office To Addressee" Service under 37 CFR 1.10 on the date indicated below and is addressed to: Commissioner for Patents, Washington, D.C. 20231.

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|------------------------|--|-------------------|
| Rick D. Madsen |  | December 16, 2002 |
| Name of Person Signing | Signature | Date |



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RESPONSE UNDER 37 CFR 1.116
EXPEDITED PROCEDURE
EXAMINING GROUP 1636

PATENT

Attorney Docket No. 208753
Client Reference No. 200104/US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hattori et al.

Application No. 09/765,865

Art Unit: 1636

Filed: January 18, 2001

Examiner: Loeb, Bronwer

For: PLASMID, A TRANSFORMANT
BEARING THE PLASMID, AND
METHOD OF PRODUCING AN
ENZYME USING THE
TRANSFORMANT

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AMENDMENTS TO CLAIMS
MADE IN RESPONSE TO OFFICE ACTION DATED SEPTEMBER 30, 2002

Amendments to existing claims:

1. (Twice Amended) A plasmid comprising a DNA fragment containing a gene coding for an enzyme taking pyrroloquinoline-quinone (PQQ) as the prosthetic group, wherein the plasmid is a broad-host-range vector defective for conjugative transfer function, and the plasmid is [expressed] expressible in bacteria of the genus *Pseudomonas*.